

Bridge Inspection Report Optimistic

Selectmen were cautiously optimistic Monday night after hearing a consultant summarize a recent inspection report on the 12 year old Powder Point Bridge.

Sai Lee, chief of the structural department for Universal Engineering in Boston, the firm which designed the completely rebuilt bridge in 1987, reviewed a recent study and findings on the 2200 foot wooden structure recommend-

ing more detailed samplings and further inspection.

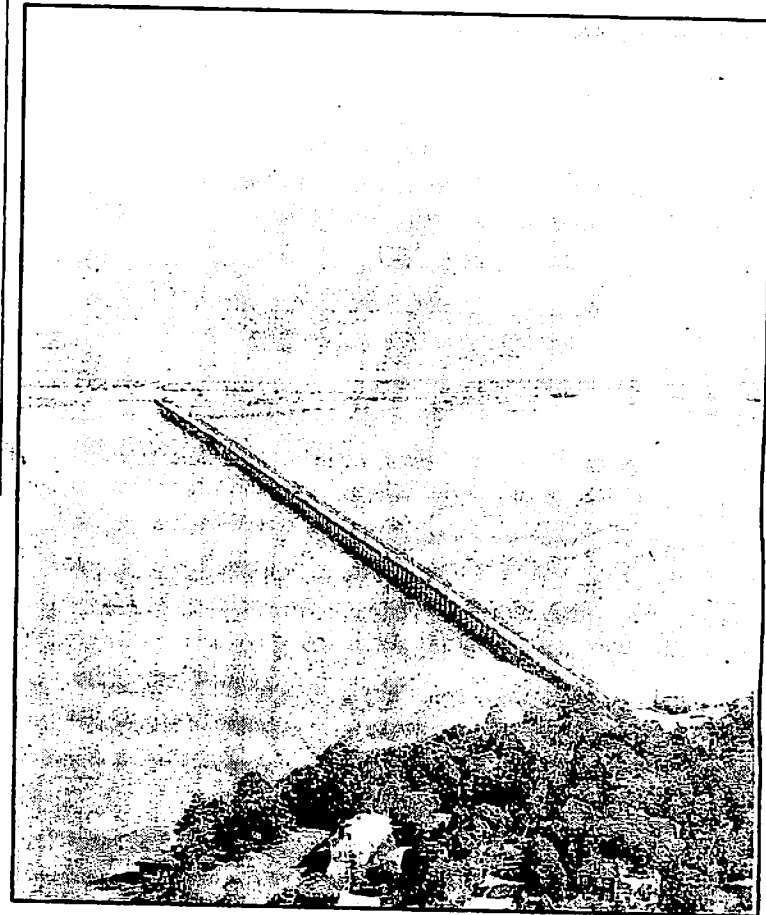
A summary prepared by Universal consultant, Professor Barry Goodell of the University of Maine-Orono, an expert in timber pile deterioration, notes:

"Piling under the Duxbury Powder Point Bridge was examined to determine the cause of a unique delamination and shake that occurred on the outer portions of about 10 percent of the piles, primarily in

the central channel area of the bridge. The wood was determined not to be attacked by marine borers. However several piles were observed to be attacked by powderpost beetles and two pilings used as guard rail posts were undergoing decay of their outer sapwood."

The report, based on an August 1999 review by Goodell,

continued on page 5



The 2200 foot Powder Point Bridge, rebuilt in 1987, needs some minor piling repairs.

continued from page one

said that "the cause of the delamination can't be positively determined but evidence suggests the sapwood of a portion of the piling was weakened by decay and insect attack and that mechanical forces such as ice and wave action were able to promote delamination of the outer portion of the predisposed piles where sapwood is present and will not occur on heartwood faces or extend deeper than the heartwood sapwood boundary. An assessment of the residual strength of the piling based on the non attacked heartwood portions of the piles is warranted."

Universal engineers believe the insects infested the wood after the trees were cut from the tropical rainforests. Lee explained that the outer sapwood layer contains starches that attract the beetles but the heartwood core is impenetrable.

Some debate arose over whether to strip the damaged sapwood away for aesthetic purposes or leave it alone.

Selectman Andre Martechinni, who is himself an engineer familiar with bridges, suggested that a modified plan was in order. He said not all the 500 pilings need to be cored and examined but only a representative sampling.

He said he thought the estimate of \$45,000 for the work was too high and should be adjusted. He also asked Lee to re-

search the original specifications for the wood ordered for the bridge to learn what percentage of sapwood was deemed acceptable in the mainly tropical hardwood construction of the bridge.

Engineer and "wood expert" Lansing Tuttle of the former Powder Point Bridge Committee offered his opinion on the report. "My impression at the time to the very best of my knowledge was the piles were to be the very best piles graded 100 percent heartwood. Sapwood has very little strength unless it is pressure treated."

DPW Director Wally Tonaszuck said that in addition to further examination of the piles, Universal will prepare an official rating for the bridge to determine weight limit. Tonaszuck said he would include the final estimated amount in his capital budget request.

On Tuesday, Tonaszuck said based on suggestions from selectmen, Universal will likely use a more statistical analysis and reduce the amount of pilings examined, meaning the cost will be less than originally estimated.

"We'll be looking at a study of piles based on a percentage of heartwood versus sapwood.

"I believe it is more of an aesthetic and visual problem versus structural. The study will confirm the approach and we'll deal with it a methodical, technical way."